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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,845	09/28/2001	Masayuki Nishimura	50395-115	2361

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WASHINGTON, DC 20005-3096

EXAMINER
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SONG, SARAH U

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 02/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/964,845

Applicant(s)

NISHIMURA, MASAYUKI

Examiner

Sarah Song

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The prior art documents submitted by the applicant in the Information Disclosure Statement filed on December 5, 2001 have all been considered and made of record (note the attached copy of form PTO-1449).

### ***Drawings***

3. This application has been filed with three (3) sheets of drawings, which have been approved by the Examiner.

### ***Claim Objections***

4. Claims 1, 7 and 10 -13 are objected to because of the following informalities: regarding claim 7, "said fusion-splicing operation" lacks proper antecedent basis; regarding claims 1 and 10-13, examiner suggests changing "joint, being" to -joint being-; additionally regarding claims 10-13, the use of the phrases "the same type" and "the same types" are objected to since the phrases do not clearly and accurately define the subject matter and the scope of the claims, and therefore render the claims indefinite because it is not clear as to what is encompassed by "the same type" or "the same types". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 5, 6, 8 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukitani et al. (*Low-loss dispersion –flattened hybrid transmission lines consisting of low-nonlinearity pure silica core fibres and dispersion compensating fibres*) in view of Morimoto et al. (*Study on Mechanical and Optical Characteristics of Reverse Dispersion Fiber Cables*).

Tsukitani et al. discloses a hybrid transmission line comprising a first optical fiber (PSCF) having a positive chromatic dispersion at a signal light wavelength; and a second optical fiber (DCF) having a negative chromatic dispersion at the same wavelength; wherein said first and second optical fibers have been connected by fusion splicing at a joint. The signal light wavelength is 1.55  $\mu\text{m}$ , the magnitudes of the chromatic dispersions of the first and second fibers is not less than 10 ps/nm/km, and the splice joint is subjected to heat treatment resulting in a splice loss not more than 0.3 dB. See Table 1 and the subsequent paragraph on page 65 of Tsukitani et al. Tsukitani et al. does not specifically disclose an optical cable.

7. Morimoto et al. disclose an optical cable comprising a hybrid transmission line similar to that of Tsukitani et al. The optical cable provides a hybrid transmission line having suitable optical and mechanical characteristics for practical usage. One of ordinary skill in the art would have found it obvious to modify the hybrid transmission line of Tsukitani et al. into a cable hybrid transmission line as taught by Morimoto et al. to provide the suitable optical and mechanical characteristics for practical usage. In light of such a modification, the fusion splice joint of Tsukitani et al. would have been consequently accommodated in the optical cable.

8. Regarding claim 3, neither Tsukitani et al. nor Morimoto et al. disclose a cable length of not less than 1 km but not more than 10 km. However, as indicated by the applicants on page 2 of the specification, the length of optical cable that can be installed on land is generally not exceeding about 10 km. Therefore, a cable length of not less than 1 km but not more than 10 km would have been obvious to one of ordinary skill in the art for facilitating installation of the cable on land.

9. Regarding claim 5, a distance between the joint and an adjacent end of the optical cable is not disclosed. However, it would have been within the level of ordinary skill in the art to locate the splice sufficiently from an adjacent end to avoid loss of the dispersion managed characteristics of the hybrid line, i.e. to maintain a sufficient length of each respective portion of the hybrid line to ensure the dispersion managed characteristics of the line.

10. Regarding claims 10-13, first and second optical cables connected together by fusion splicing are not specifically disclosed. However, a completed transmission link typically comprises a plurality of cables that are fusion spliced to achieve the desired length in the field. Furthermore, the fusion-spliced segments would typically comprise “the same types” of optical fibers, e.g. fibers for transmission in the same wavelength band.

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukitani et al. in view of Morimoto et al. as applied to claim 2 above, and further in view of Srikant (U.S. Patent Application Publication 2002/0003938). Neither Tsukitani et al. nor Morimoto et al. disclose a ratio of the effective areas of the respective fibers. Srikant discloses the benefits of matching the mode field diameters (and thus the effective areas) of adjacent sections of dispersion-managed fibers to minimize losses ([0045], [0087]). Therefore, it would have been obvious to one having

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ordinary skill in the art to select the respective fibers to have closely matched effective areas to minimize losses, as taught by Srikant.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukitani et al. in view of Morimoto et al. as applied to claim 2 above, and further in view of Ray et al. (U.S. Patent 5,657,413). Neither Tsukitani et al. nor Morimoto et al. disclose re-coating the joint subsequent to fusion splicing. Ray et al. discloses that conventional fusion splices are protected by sleeves, which are secured around the splices (column 12, lines 38-44). A protective sleeve around a splice joint is equivalent to a re-coated splice joint. Therefore, one of ordinary skill in the art would have found it obvious to re-coat the fusion splice of Tsukitani et al. to protect the splice joint.

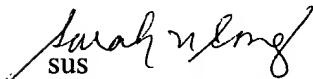
13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukitani et al. in view of Morimoto et al. as applied to claim 2 above, and further in view of Fangmann et al. (U.S. Patent 5,611,016). Neither Tsukitani et al. nor Morimoto et al. disclose information for identifying each type of optical fiber. Fangmann et al. disclose light-colored indicators for positive dispersion fibers and dark-colored indicators for negative dispersion fibers (column 6, lines 54-61). One of ordinary skill in the art would have found it obvious to provide the hybrid line of Tsukitani et al. with colored markers to facilitate the identification of the respective fibers in the field, as taught by Fangmann et al.

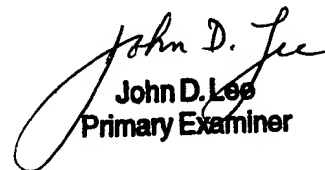
### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Estes et al. (U.S. patent 6,215,930) discloses factory-spliced fibers, which reduce installation time and effort, overall cost, and improve quality.

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15. Any inquiry concerning the merits of this communication should be directed to Examiner Sarah Song at telephone number 703-306-5799. Any inquiry of a general or clerical nature, or relating to the status of this application or proceeding should be directed to the receptionist at telephone number 703-308-0956 or to the technical support staff supervisor at telephone number 703-308-3072.

  
sus  
February 20, 2003

  
John D. Lee  
Primary Examiner